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<110> Allen, Stephen

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Gly Arg Gly Gly Gly Pro Glu Met Glu Ala Ser Ala Gly Leu Val Ala
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Ser Gly Ala Ala Gly Gly Gly Ala Ala Arg Arg Ala Glu Ala Pro Cys
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Ala His Glu Asp Asp Pro Gln Tyr Val Ala Glu Ser Met Leu Arg Ala  
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Gln Met Ser Tyr Gly Arg Gly Gly Asp Ala His Pro Gly Phe Ser Pro  
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Val Pro Asn Val Pro Leu Leu Thr Asn Gly Gln Met Val Asp Asp Ile  
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Pro Pro Glu Gln His Ala Leu Val Pro Ser Tyr Met Ser Gly Gly Gly  
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Gly Gly Gly Lys Arg Ile His Pro Leu Pro Phe Ala Asp Pro Asn Leu  
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Pro Val Gln Pro Arg Ser Met Asp Pro Ser Lys Asp Leu Ala Ala Tyr  
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Gly Tyr Gly Ser Val Ala Trp Lys Glu Arg Met Glu Gly Trp Lys Gln  
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Leu Arg Phe Asp Lys Glu Gly Gln Pro Ser Gln Leu Ala Pro Ile Asp  
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Val	Ser	Cys	Tyr	Val	Ser	Asp	Asp	Gly	Ala	Ala	Met	Leu	Thr	Phe	Glu	465	470	475
Ala	Leu	Ser	Glu	Thr	Ser	Glu	Phe	Ala	Lys	Lys	Trp	Val	Pro	Phe	Ser	485	490	495
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 Cys Pro Gln Cys Lys Thr Arg Tyr Lys Arg Leu Lys Gly Cys Gln Arg  
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 Val Thr Gly Asp Glu Glu Glu Asp Gly Val Asp Asp Leu Asp Asn Glu  
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Tyr Gly His Met Ser Tyr Gly Arg Gly Gly Asp Pro Asn Gly Ala Pro  
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 Val Val Phe Phe Asp Ile Asn Met Lys Gly Leu Asp Gly Ile Gln Gly  
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 Pro Ile Tyr Val Gly Thr Gly Cys Val Phe Arg Arg Gln Ala Leu Tyr  
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 Gly Tyr Asp Ala Pro Lys Thr Lys Lys Pro Pro Ser Arg Thr Cys Asn  
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 Ser Thr Leu Leu Glu Asn Gly Gly Thr Leu Lys Ser Ala Ser Pro Ala  
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 Ser Leu Leu Lys Glu Ala Ile His Val Ile Ser Cys Gly Tyr Glu Asp  
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Lys Thr Asp Trp Gly Lys Glu Ile Gly Trp Ile Tyr Gly Ser Val Thr  
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 Glu Asp Ile Leu Thr Gly Phe Lys Met His Cys His Gly Trp Arg Ser  
 785 790 795 800  
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 Asn Leu Ser Asp Arg Leu His Gln Val Leu Arg Trp Ala Leu Gly Ser  
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 850 855 860  
 Tyr Pro Trp Thr Ser Ile Pro Leu Leu Ala Tyr Cys Thr Leu Pro Ala  
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 Ile Cys Leu Leu Thr Gly Lys Phe Ile Thr Pro Glu Leu Asn Asn Val  
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 Ala Ser Leu Trp Phe Met Ser Leu Phe Ile Cys Ile Phe Ala Thr Ser  
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 Thr Val Thr Ser Lys Gly Gly Asp Asp Glu Glu Phe Ser Glu Leu Tyr  
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 Thr Phe Lys Trp Thr Thr Leu Leu Ile Pro Pro Thr Thr Leu Leu Leu  
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 Gln Asn Arg Thr Pro Thr Ile Val Ile Val Trp Ser Ile Leu Leu Ala  
 1045 1050 1055  
 Ser Ile Phe Ser Leu Leu Trp Val Arg Ile Asp Pro Phe Leu Ala Lys  
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 Lys Val Val Ala Arg Gly Ser Tyr Arg Gly Met Ala Trp Pro Glu Leu  
 100 105 110  
 Val Arg Asp Arg Arg Arg Val Arg Arg Glu Tyr Glu Glu Met Arg Leu  
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Gly Ser Val Pro Gln Leu Gly Val Ala Asn Gly Ser Lys Leu Ile Asp  
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Glu Lys Arg Arg Gly His Ala His His Arg Lys Ala Gly Ala Met Asn  
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Ala Pro Phe Ile Leu Asp Leu Asp Cys Asp Tyr Tyr Val Asn Asn Ser  
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Gln Ala Leu Arg Ala Gly Ile Cys Phe Met Ile Glu Arg Gly Gly Gly  
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Gly Ala Ala Glu Asp Ala Gly Ala Val Ala Phe Val Gln Phe Pro Gln  
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Arg Val Asp Gly Val Asp Pro Gly Asp Arg Tyr Ala Asn His Asn Arg  
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Val Leu Phe Asp Cys Thr Glu Leu Gly Leu Asp Gly Leu Gln Gly Pro  
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Val Asp Leu Pro Arg Trp Arg Pro Arg Arg Ser Leu Gly Cys Arg Leu  
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His	Gly	Arg	Met	Ser	Tyr	Gly	Arg	Gly	Pro	Glu	Asp	Asp	Asp	Asn	Ser		
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Ser	Ser	Leu	His	Lys	Arg	Val	His	Pro	Tyr	Pro	Val	Ser	Glu	Pro	Gly		
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Ser	Ala	Arg	Trp	Asp	Glu	Lys	Lys	Xaa	Asp	Gly	Trp	Lys	Asp	Arg	Met		
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Glu	Ile	Trp	Phe	Ala	Phe	Ser	Trp	Ile	Leu	Asp	Gln	Phe	Pro	Lys	Trp		
	290					295					300						
Phe	Pro	Ile	Asp	Arg	Glu	Thr	Tyr	Leu	Asp	Arg	Leu	Ser	Ile	Arg	Tyr		
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Glu	Arg	Glu	Gly	Glu	Pro	Asn	Met	Leu	Ala	Pro	Val	Asp	Val	Phe	Val		
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Ser	Thr	Val	Asp	Pro	Met	Lys	Glu	Pro	Pro	Leu	Val	Thr	Ala	Asn	Thr		
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Val	Leu	Ser	Ile	Leu	Ala	Met	Asp	Tyr	Pro	Val	Asp	Lys	Ile	Ser	Cys	355	360	365
Tyr	Ile	Ser	Asp	Asp	Gly	Ala	Ser	Met	Cys	Thr	Phe	Glu	Ser	Leu	Ser	370	375	380
Glu	Thr	Ala	Glu	Phe	Ala	Arg	Lys	Trp	Val	Pro	Phe	Cys	Lys	Lys	Phe	385	390	395
Ser	Ile	Glu	Pro	Arg	Ala	Pro	Glu	Met	Tyr	Phe	Ser	Glu	Lys	Ile	Asp	405	410	415
Tyr	Leu	Lys	Asp	Lys	Val	Gln	Pro	Thr	Phe	Val	Lys	Glu	Arg	Arg	Ala	420	425	430
Met	Lys	Arg	Glu	Tyr	Glu	Glu	Phe	Lys	Val	Arg	Ile	Asn	Ala	Leu	Val	435	440	445
Ala	Lys	Ala	Gln	Lys	Val	Pro	Gln	Gly	Gly	Trp	Ile	Met	Gln	Asp	Gly	450	455	460
Thr	Pro	Trp	Pro	Gly	Asn	Asn	Thr	Lys	Asp	His	Pro	Gly	Met	Ile	Gln	465	470	475
Val	Phe	Leu	Gly	Ser	Ser	Gly	Gly	Leu	Asp	Thr	Glu	Gly	Asn	Gln	Leu	485	490	495
Pro	Arg	Leu	Val	Tyr	Val	Ser	Arg	Glu	Lys	Arg	Pro	Gly	Phe	Gln	His	500	505	510
His	Lys	Lys	Ala	Gly	Ala	Met	Asn	Ala	Leu	Val	Arg	Val	Ser	Ala	Val	515	520	525
Leu	Thr	Asn	Ala	Pro	Phe	Met	Leu	Asn	Leu	Asp	Cys	Asp	His	Tyr	Val	530	535	540
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Gln	Thr	Gly	Lys	Lys	Val	Cys	Tyr	Val	Gln	Phe	Pro	Gln	Arg	Phe	Asp	565	570	575
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Asp	Ile	Asn	Met	Lys	Gly	Leu	Asp	Gly	Ile	Gln	Gly	Pro	Val	Tyr	Val	595	600	605
Gly	Thr	Gly	Cys	Val	Phe	Arg	Arg	Gln	Ala	Leu	Tyr	Gly	Tyr	Asn	Pro	610	615	620
Pro	Lys	Gly	Pro	Lys	Arg	Pro	Lys	Met	Val	Ser	Cys	Asp	Cys	Cys	Pro	625	630	635
Cys	Phe	Gly	Ser	Arg	Lys	Lys	Tyr	Lys	Glu	Lys	Asn	Asp	Ala	Asn	Gly	645	650	655
Glu	Ala	Ala	Ser	Leu	Lys	Gly	Met	Asp	Asp	Asp	Lys	Glu	Val	Leu	Met	660	665	670

Ser	Gln	Met	Asn	Phe	Glu	Lys	Lys	Phe	Gly	Gln	Ser	Ser	Ile	Phe	Val
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Thr	Ser	Thr	Leu	Met	Glu	Glu	Gly	Gly	Val	Pro	Pro	Ser	Ser	Ser	Pro
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Ala	Ala	Leu	Leu	Lys	Glu	Ala	Ile	His	Val	Ile	Ser	Cys	Gly	Tyr	Glu
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Asp	Lys	Thr	Glu	Trp	Gly	Leu	Glu	Leu	Gly	Trp	Ile	Tyr	Gly	Ser	Ile
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Thr	Glu	Asp	Ile	Leu	Thr	Gly	Phe	Lys	Met	His	Cys	Arg	Gly	Trp	Arg
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Lys	Glu	Lys	Lys	Leu	Lys	Trp	Leu	Glu	Arg	Phe	Ala	Tyr	Ala	Asn	Thr
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Pro	Ala	Val	Cys	Leu	Leu	Thr	Asp	Lys	Phe	Ile	Met	Pro	Pro	Ile	Ser
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Asn	Phe	Thr	Val	Thr	Ser	Lys	Ala	Thr	Asp	Asp	Glu	Glu	Phe	Gly	Glu
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Leu	Ile	Ile	Asn	Ile	Val	Gly	Val	Val	Ala	Gly	Ile	Ser	Asp	Ala	Ile
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 1025 1030 1035

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 <211> 610  
 <212> PRT  
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Val Phe Leu Gly His Ser Gly Gly Leu Asp Thr Asp Gly Asn Glu Leu  
35 40 45  
Pro Arg Leu Val Tyr Val Ser Arg Glu Lys Arg Pro Gly Phe Gln His  
50 55 60  
His Lys Lys Ala Gly Ala Met Asn Ala Leu Ile Arg Val Ser Ala Val  
65 70 75 80  
Leu Thr Asn Gly Ala Tyr Leu Leu Asn Val Asp Cys Asp His Tyr Phe  
85 90 95  
Asn Asn Ser Lys Ala Leu Lys Glu Ala Met Cys Phe Met Met Asp Pro  
100 105 110  
Val Leu Gly Lys Lys Thr Cys Tyr Val Gln Phe Pro Gln Arg Phe Asp  
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Gly Ile Asp Leu His Asp Arg Tyr Ala Asn Arg Asn Ile Val Phe Phe  
130 135 140  
Asp Ile Asn Met Lys Gly Gln Asp Gly Val Gln Gly Pro Val Tyr Val  
145 150 155 160  
Gly Thr Gly Cys Cys Phe Asn Arg Gln Ala Leu Tyr Gly Tyr Asp Pro  
165 170 175  
Val Leu Thr Glu Glu Asp Leu Glu Pro Asn Ile Ile Val Lys Ser Cys  
180 185 190  
Cys Gly Ser Arg Lys Lys Gly Lys Gly Gly Asn Lys Lys Tyr Ser Asp  
195 200 205  
Lys Lys Lys Ala Met Gly Arg Thr Glu Ser Thr Val Pro Ile Phe Asn  
210 215 220  
Met Glu Asp Ile Glu Glu Gly Val Glu Gly Tyr Asp Asp Glu Arg Thr  
225 230 235 240  
Leu Leu Met Ser Gln Lys Ser Leu Glu Lys Arg Phe Gly Gln Ser Pro  
245 250 255  
Val Phe Ile Ala Ala Thr Phe Met Glu Gln Gly Gly Ile Pro Pro Ser  
260 265 270  
Thr Asn Pro Ala Thr Leu Leu Lys Glu Ala Ile His Val Ile Ser Cys  
275 280 285  
Gly Tyr Glu Asp Lys Thr Glu Trp Gly Lys Glu Ile Gly Trp Ile Tyr  
290 295 300  
Gly Ser Val Thr Glu Asp Ile Leu Thr Gly Phe Lys Met His Ala Arg  
305 310 315 320

Gly Trp Ile Ser Ile Tyr Cys Met Pro Pro Arg Pro Ala Phe Lys Gly  
325 330 335

Ser Ala Pro Ile Asn Leu Ser Asp Arg Leu Asn Gln Val Leu Arg Trp  
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Ala Leu Gly Ser Ile Glu Ile Phe Leu Ser Arg His Cys Pro Leu Trp  
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Tyr Gly Tyr Asn Gly Lys Leu Lys Pro Leu Met Arg Leu Ala Tyr Ile  
370 375 380

Asn Thr Ile Val Tyr Pro Phe Thr Ser Ile Pro Leu Ile Ala Tyr Cys  
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Thr Leu Pro Ala Phe Cys Leu Leu Thr Asn Lys Phe Ile Ile Pro Glu  
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Ile Ser Asn Phe Ala Ser Met Trp Phe Ile Leu Leu Phe Val Ser Ile  
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Phe Thr Thr Ser Ile Leu Glu Leu Arg Trp Ser Gly Val Ser Ile Glu  
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Asp Trp Trp Arg Asn Glu Gln Phe Trp Val Ile Gly Gly Thr Ser Ala  
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His Leu Phe Ala Val Phe Gln Gly Leu Leu Lys Val Leu Ala Gly Ile  
465 470 475 480

Asp Thr Asn Phe Thr Val Thr Ser Lys Ala Ser Asp Glu Asp Gly Asp  
485 490 495

Phe Ala Glu Leu Tyr Val Phe Lys Trp Thr Ser Leu Leu Ile Pro Pro  
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Thr Thr Val Leu Ile Val Asn Leu Val Gly Ile Val Ala Gly Val Ser  
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Tyr Ala Ile Asn Ser Gly Tyr Gln Ser Trp Gly Pro Leu Phe Gly Lys  
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Leu Phe Phe Ala Ile Trp Val Ile Ala His Leu Tyr Pro Phe Leu Lys  
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Gly Leu Leu Gly Arg Gln Asn Arg Thr Pro Thr Ile Val Ile Val Trp  
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Ser Val Leu Leu Ala Ser Ile Phe Ser Leu Leu Trp Val Arg Ile Asp  
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Pro Phe Thr Ser Asp Ser Asn Lys Leu Thr Asn Gly Gln Cys Gly Ile  
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Asn Cys  
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Pro Lys Trp Tyr Pro Ile Gln Arg Glu Thr Tyr Leu Asp Arg Leu Ser
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Leu Arg Tyr Glu Lys Glu Gly Lys Pro Ser Glu Leu Ser Ser Val Asp
 50          55          60

Val Phe Val Ser Thr Val Asp Pro Met Lys Glu Pro Pro Leu Ile Thr
 65          70          75          80

Ala Asn Thr Val Leu Ser Ile Leu Ala Val Asp Tyr Pro Val Asp Lys
          85          90          95

Val Ala Cys Tyr Val Ser Asp Asp Gly Ala Ala Met Leu Thr Phe Glu
100          105          110

Ala Leu Ser Glu Thr Ser Glu Phe Ala Arg Arg Trp Val Pro Phe Cys
115          120          125

Lys Lys Tyr Asn Ile Glu Pro Arg Ala Pro Glu Trp Tyr Phe Gly Gln
130          135          140

Lys Met Asp Tyr Leu Lys Asn Lys Val His Pro Ala Phe Val Arg Glu
145          150          155          160

Arg Arg Ala Met Lys Arg Asp Tyr Glu Glu Phe Lys Val Arg Ile Asn
165          170          175

Ser Leu Val Ala Thr Ala Gln Lys Val Pro Glu Asp Gly Trp Thr Met
180          185          190

Gln Asp Gly Thr Pro Trp Pro Gly Asn Asn Val Arg Asp His Pro Gly
195          200          205

Met Ile Gln Val Phe Leu Gly Gln Asp Gly Val Arg Asp Val Glu Gly
210          215          220

Asn Glu Leu Pro Arg Leu Val Tyr Val Ser Arg Glu Lys Arg Pro Gly
225          230          235          240

Phe Asp His His Lys Lys Ala Gly Ala Met Asn Ala Leu Val Arg Ala
245          250          255

Ser Ala Ile Ile Thr Asn Ala Pro Tyr Leu Leu Asn Val Asp Cys Asp
260          265          270

His Tyr Ile Asn Asn Ser Lys Ala Leu Arg Glu Ala Met Cys Phe Met
275          280          285

Met Asp Pro Gln Leu Gly Lys Lys Val Cys Tyr Val Gln Phe Pro Gln
290          295          300

Arg Phe Asp Gly Ile Asp Arg His Asp Arg Tyr Ser Asn Arg Asn Val
305          310          315          320

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Val	Phe	Phe	Asp	Ile	Asn	Met	Lys	Gly	Leu	Asp	Gly	Ile	Gln	Gly	Pro	
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Ile	Tyr	Val	Gly	Thr	Gly	Cys	Val	Phe	Arg	Arg	Tyr	Ala	Leu	Tyr	Gly	
			340					345					350			
Tyr	Asp	Ala	Pro	Ala	Lys	Lys	Lys	Pro	Pro	Ser	Lys	Thr	Cys	Asn	Cys	
		355					360					365				
Trp	Pro	Lys	Trp	Cys	Cys	Leu	Cys	Cys	Gly	Ser	Arg	Lys	Lys	Lys	Asn	
	370					375					380					
Ala	Asn	Ser	Lys	Lys	Glu	Lys	Lys	Arg	Lys	Val	Lys	His	Ser	Glu	Ala	
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Ser	Lys	Gln	Ile	His	Ala	Leu	Glu	Asn	Ile	Glu	Ala	Gly	Asn	Glu	Gly	
				405					410					415		
Thr	Asn	Asn	Glu	Lys	Thr	Ser	Asn	Leu	Thr	Gln	Thr	Lys	Leu	Glu	Lys	
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Arg	Phe	Gly	Gln	Ser	Pro	Val	Phe	Val	Ala	Ser	Thr	Leu	Leu	Asp	Asp	
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Gly	Gly	Val	Pro	His	Gly	Val	Ser	Pro	Ala	Ser	Leu	Leu	Lys	Glu	Ala	
	450					455					460					
Ile	Gln	Val	Ile	Ser	Cys	Gly	Tyr	Glu	Asp	Lys	Thr	Glu	Trp	Gly	Lys	
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Glu	Val	Gly	Trp	Ile	Tyr	Gly	Ser	Val	Thr	Glu	Asp	Ile	Leu	Thr	Gly	
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Phe	Lys	Met	His	Cys	His	Gly	Trp	Arg	Ser	Val	Tyr	Cys	Ile	Pro	Lys	
			500					505					510			
Arg	Pro	Ala	Phe	Lys	Gly	Ser	Ala	Pro	Ile	Asn	Leu	Ser	Asp	Arg	Leu	
		515					520					525				
His	Gln	Val	Leu	Arg	Trp	Ala	Leu	Gly	Ser	Val	Glu	Ile	Phe	Phe	Ser	
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Glu	Arg	Phe	Ser	Tyr	Ile	Asn	Ser	Val	Val	Tyr	Pro	Trp	Thr	Ser	Leu	
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Pro	Leu	Leu	Val	Tyr	Cys	Thr	Leu	Pro	Ala	Ile	Cys	Leu	Leu	Thr	Gly	
			580					585				590				
Lys	Phe	Ile	Val	Pro	Glu	Ile	Ser	Asn	Tyr	Ala	Ser	Leu	Val	Phe	Met	
		595					600					605				
Ala	Leu	Phe	Ile	Ser	Ile	Ala	Ala	Thr	Gly	Ile	Leu	Glu	Met	Gln	Trp	
	610					615					620					
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645 650 655

Lys Val Leu Ala Gly Val Asn Thr Asn Phe Thr Val Thr Ser Lys Ala  
660 665 670

Ala Asp Asp Gly Glu Phe Ser Glu Leu Tyr Ile Phe Lys Trp Thr Ser  
675 680 685

Leu Leu Ile Pro Pro Met Thr Leu Leu Ile Met Asn Ile Val Gly Val  
690 695 700

Val Val Gly Ile Ser Asp Ala Ile Asn Asn Gly Tyr Asp Ser Trp Gly  
705 710 715 720

Pro Leu Phe Gly Arg Leu Phe Phe Ala Leu Trp Val Ile Leu His Leu  
725 730 735

Tyr Pro Phe Leu Lys Gly Leu Leu Gly Lys Gln Asp Arg Met Pro Thr  
740 745 750

Ile Ile Leu Val Trp Ser Ile Leu Leu Ala Ser Ile Leu Thr Leu Met  
755 760 765

Trp Val Arg Ile Asn Pro Phe Val Ser Arg Asp Gly Pro Val Leu Glu  
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Ile Cys Gly Leu Asn Cys Asp Glu Ser  
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<213> Triticum aestivum

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Tyr Ala Asn Arg Asn Thr Val Phe Phe Asp Ile Asn Leu Arg Gly Leu
      35             40             45

Asp Gly Ile Gln Gly Pro Val Tyr Val Gly Thr Gly Cys Val Phe Asn
      50             55             60

Arg Thr Ala Ile Tyr Gly Tyr Glu Pro Pro Ile Lys Ala Lys Lys Pro
      65             70             75             80

Gly Phe Leu Ala Ser Leu Cys Xaa Gly Lys Lys Lys Ala Ser Lys Ser
      85             90             95

Lys Lys Arg Ser Ser Asp Lys Lys Lys Ser Asn Lys His Val Asp Ser
      100            105            110

Ser Val Pro Val Phe Asn Leu Glu Asp Ile Glu Glu Gly Val Glu Gly
      115            120            125

Ala Gly Phe Asp Asp Glu Lys Ser Val Leu Met Ser Gln Met Ser Leu
      130            135            140

Glu Lys Arg Phe Gly Gln Ser Ala Ala Phe Val Ala Ser Thr Leu Met
      145            150            155            160

Glu Tyr Gly Gly Val Pro Gln Ser Ser Thr Pro Glu Ser Leu Leu Lys
      165            170            175

Glu Ala Ile His Val Ile Ser Cys Gly Tyr Glu Asp Lys Ser Glu Trp
      180            185            190

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Pro	Lys	Arg	Pro	Ala	Phe	Lys	Gly	Ser	Ala	Pro	Ile	Asn	Leu	Ser	Asp
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Arg	Leu	Asn	Gln	Val	Leu	Arg	Trp	Ala	Leu	Gly	Ser	Val	Glu	Ile	Leu
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Phe	Ser	Arg	His	Cys	Pro	Leu	Trp	Tyr	Gly	Tyr	Gly	Gly	Arg	Leu	Lys
			260					265					270		
Phe	Leu	Glu	Arg	Phe	Ala	Tyr	Ile	Asn	Thr	Thr	Ile	Tyr	Pro	Leu	Thr
		275					280					285			
Ser	Leu	Pro	Leu	Leu	Val	Tyr	Cys	Ile	Leu	Pro	Ala	Ile	Cys	Leu	Leu
	290					295					300				
Thr	Gly	Lys	Phe	Ile	Met	Pro	Glu	Ile	Ser	Asn	Leu	Ala	Ser	Ile	Trp
305					310					315					320
Phe	Ile	Ala	Leu	Phe	Leu	Ser	Ile	Phe	Ala	Thr	Gly	Ile	Leu	Glu	Met
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Arg	Trp	Ser	Gly	Val	Gly	Ile	Asp	Glu	Trp	Trp	Arg	Asn	Glu	Gln	Phe
			340					345					350		
Trp	Val	Ile	Gly	Gly	Ile	Ser	Ala	His	Leu	Phe	Ala	Val	Phe	Gln	Gly
		355					360					365			
Leu	Leu	Lys	Val	Leu	Ala	Gly	Ile	Asp	Thr	Asn	Phe	Thr	Val	Thr	Ser
	370					375					380				
Lys	Ala	Asn	Asp	Glu	Glu	Gly	Asp	Phe	Ala	Glu	Leu	Tyr	Met	Phe	Lys
385					390					395					400
Trp	Thr	Thr	Leu	Leu	Ile	Pro	Pro	Thr	Thr	Ile	Leu	Ile	Ile	Asn	Met
				405					410					415	
Val	Gly	Val	Val	Ala	Gly	Thr	Ser	Tyr	Ala	Ile	Asn	Ser	Gly	Tyr	Gln
			420					425					430		
Ser	Trp	Gly	Pro	Leu	Phe	Gly	Lys	Leu	Phe	Phe	Ala	Phe	Trp	Val	Ile
		435					440					445			
Val	His	Leu	Tyr	Pro	Phe	Leu	Lys	Gly	Leu	Met	Gly	Arg	Gln	Asn	Arg
	450					455					460				
Thr	Pro	Thr	Ile	Val	Ile	Val	Trp	Ala	Val	Leu	Leu	Ala	Ser	Ile	Phe
465					470					475					480
Ser	Leu	Leu	Trp	Val	Arg	Val	Asp	Pro	Phe	Thr	Thr	Arg	Leu	Ala	Gly
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Pro	Asn	Ile	Gln	Thr	Cys	Gly	Ile	Asn	Cys						
			500					505							

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 <213> Triticum aestivum

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 ccactaccga gtgatgcac cggcgaaaga tgcatttgca ttgtggctca tatctgtaat 480  
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 Arg Ser Met Asp Pro Ser Lys Asp Leu Ala Ala Tyr Gly Tyr Gly Ser  
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 115 120 125  
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Ile Trp Phe Ala Met Ser Cys Ile Leu Asp Gln Phe Pro Lys Trp Phe  
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Thr Val Asp Pro Thr Lys Glu Pro Pro Leu Val Thr Ala Asn Thr Val  
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Val Ser Asp Asp Gly Ala Ala Met Leu Thr Phe Glu Ala Leu Ser Glu  
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Ile Glu Pro Arg Ala Pro Glu Trp Tyr Phe Gln Gln Lys Ile Asp Tyr  
275 280 285

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 <213> *Picramnia pentandra*

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 35 40 45  
 Cys Tyr Val Ser Asp Asp Gly Ala Ala Met Leu Thr Phe Glu Ala Leu  
 50 55 60  
 Ser Glu Thr Ser Glu Phe Ala Arg Lys Trp Val Pro Phe Cys Lys Lys  
 65 70 75 80  
 Phe Ser Ile Glu Pro Arg Ala Pro Glu Trp Tyr Phe Ser Gln Lys Met  
 85 90 95  
 Asp Tyr Leu Lys Asn Lys Val His Pro Ser Phe Val Arg Glu Arg Arg  
 100 105 110  
 Ala Met Lys Arg Glu Tyr Glu Val Phe Lys Val Arg Ile Asn Gly Leu  
 115 120 125

Val	Ala	Met	Ala	Gln	Lys	Val	Pro	Glu	Asp	Gly	Trp	Thr	Met	Gln	Asp	
130						135					140					
Gly	Thr	Pro	Trp	Pro	Gly	Asn	Asn	Val	Arg	Asp	His	Pro	Gly	Met	Ile	
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Gln	Val	Phe	Leu	Gly	His	Asn	Gly	Val	Arg	Asp	Val	Glu	Gly	Asn	Glu	
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Leu	Pro	Arg	Leu	Ile	Tyr	Val	Ser	Arg	Glu	Lys	Arg	Pro	Gly	Phe	Glu	
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His	His	Lys	Lys	Ala	Gly	Ala	Met	Asn	Ser	Leu	Val	Arg	Val	Ser	Ala	
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Pro	Thr	Ser	Gly	Lys	Lys	Leu	Cys	Tyr	Val	Gln	Phe	Pro	Gln	Arg	Phe	
				245					250					255		
Asp	Gly	Ile	Asp	Arg	His	Asp	Arg	Tyr	Ser	Asn	Arg	Asn	Val	Val	Phe	
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Phe	Asp	Ile	Asn	Met	Lys	Gly	Leu	Asp	Gly	Ile	Gln	Gly	Pro	Ile	Tyr	
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Lys	Trp	Leu	Cys	Cys	Cys	Cys	Gly	Ser	Arg	Lys	Asn	Lys	Lys	Ser	Lys	
			325						330					335		
Pro	Lys	Lys	Glu	Lys	Lys	Lys	Ser	Lys	Asn	Arg	Glu	Ala	Ser	Lys	Gln	
			340					345					350			
Ile	His	Ala	Leu	Glu	Asn	Ile	Glu	Glu	Gly	Met	Gly	Gly	Leu	Asn	Ser	
		355					360					365				
Glu	Lys	Ser	Cys	Glu	Thr	Thr	Pro	Leu	Lys	Leu	Glu	Lys	Lys	Phe	Gly	
	370					375					380					
Gln	Ser	Pro	Val	Phe	Val	Ala	Ser	Thr	Leu	Leu	Glu	Asp	Gly	Gly	Val	
385					390					395					400	
Pro	Gln	Asp	Ala	Thr	Pro	Ala	Ala	Leu	Leu	Lys	Glu	Ala	Ile	Gln	Val	
			405					410						415		
Ile	Ser	Cys	Gly	Tyr	Glu	Asp	Lys	Thr	Glu	Trp	Gly	Lys	Glu	Val	Gly	
			420				425						430			
Trp	Ile	Tyr	Gly	Ser	Val	Thr	Glu	Asp	Ile	Leu	Thr	Gly	Phe	Lys	Met	
		435					440					445				

His	Cys	His	Gly	Trp	Arg	Ser	Val	Tyr	Cys	Met	Pro	Ala	Arg	Pro	Ala		
450						455					460						
Phe	Lys	Gly	Ser	Ala	Pro	Ile	Asn	Leu	Ser	Asp	Arg	Leu	His	Gln	Val		
465					470					475					480		
Leu	Arg	Trp	Ala	Leu	Gly	Ser	Val	Glu	Ile	Phe	Leu	Ser	Arg	His	Cys		
				485					490					495			
Pro	Leu	Trp	Tyr	Gly	Tyr	Gly	Gly	Gly	Leu	Lys	Trp	Leu	Glu	Arg	Phe		
			500					505					510				
Ser	Tyr	Val	Ser	Ser	Val	Val	Tyr	Pro	Trp	Thr	Ser	Ile	Pro	Leu	Leu		
		515					520					525					
Val	Tyr	Cys	Thr	Leu	Pro	Ala	Ile	Cys	Leu	Leu	Thr	Gly	Lys	Phe	Ile		
		530				535						540					
Val	Pro	Glu	Ile	Ser	Asn	Tyr	Ala	Ser	Ile	Leu	Phe	Met	Leu	Leu	Phe		
		545			550					555					560		
Ile	Phe	Ile	Ala	Ala	Thr	Ser	Ile	Leu	Glu	Met	Gln	Trp	Gly	Gly	Val		
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		595					600						605				
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Gly	Asp	Phe	Ser	Glu	Leu	Tyr	Leu	Phe	Lys	Trp	Thr	Thr	Leu	Leu	Ile		
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Pro	Pro	Thr	Thr	Leu	Leu	Ile	Ile	Asn	Ile	Val	Gly	Val	Val	Val	Gly		
				645					650					655			
Val	Ser	Asp	Ala	Ile	Asn	Asn	Gly	Tyr	Asp	Ser	Trp	Gly	Pro	Leu	Phe		
			660					665					670				
Gly	Arg	Leu	Phe	Phe	Ala	Phe	Trp	Val	Ile	Val	His	Leu	Tyr	Pro	Phe		
		675					680					685					
Leu	Lys	Gly	Leu	Leu	Gly	Lys	Gln	Asp	Arg	Thr	Pro	Thr	Ile	Ile	Val		
		690				695					700						
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					710					715					720		
Ile	Asn	Pro	Phe	Val	Ser	Arg	Asp	Gly	Pro	Val	Leu	Glu	Val	Cys	Gly		
				725					730					735			
Leu	Asn	Cys	Asp														
			740														

Parameter	Value	Unit
Initial concentration	1.0	g/L
Initial pH	7.0	
Temperature	25	°C
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<212> PRT
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Leu Lys Glu Ala Asn Gly Gln Ile Cys Gln Ile Cys Gly Asp Thr Val
      35             40             45

Gly Lys Ser Ala Thr Gly Asp Thr Phe Val Ala Cys Asn Glu Cys Gly
      50             55             60

Phe Pro Val Cys Arg Pro Cys Tyr Glu Tyr Glu Arg Lys Asp Gly Asn
      65             70             75             80

Gln Cys Cys Pro Gln Cys Lys Thr Arg Tyr Lys Arg Gln Lys Gly Ser
      85             90             95

Pro Arg Val Glu Gly Asp Glu Glu Glu Glu Asp Val Asp Asp Leu Glu
      100            105            110

Asn Glu Phe Asn Tyr Ser Gly Lys Gly Lys Asn Gln Lys Lys Val Thr
      115            120            125

Thr Ala Arg Arg Pro Trp Gln Gly Asp Gln Gln Asp Ile Glu Leu Ser
      130            135            140

Val Ser Ser Ser Arg His Asp Glu Ser Gln Gln Pro Val Pro Leu Leu
      145            150            155            160

Thr His Gly His Ser Val Ser Gly Glu Ile Pro Thr Pro Asp Asn His
      165            170            175

Ser Ile Arg Thr Thr Ser Gly Pro Ile Gly Pro Val Glu Lys Ser Ile
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Pro Tyr Ile Asp Pro Arg Gln Pro Val Ala Val Arg Ile Ile Val Asp
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Pro Ser Lys Asp Leu Asn Ser Tyr Gly Leu Gly Asn Val Asp Trp Lys
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Glu Arg Val Glu Gly Trp Lys Leu Lys Gln Glu Lys Asn Met Val Gln
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Met	Thr	Ser	Arg	Tyr	Pro	Glu	Gly	Lys	Gly	Asp	Thr	Glu	Gly	Thr	Gly	245	250	255
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Met	Ser	Arg	Ile	Val	Pro	Ile	Ser	Ser	Thr	His	Leu	Thr	Pro	Tyr	Arg	275	280	285
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Arg	Cys	Thr	His	Pro	Val	Lys	Asp	Ala	Tyr	Pro	Leu	Trp	Leu	Thr	Ser	305	310	315
Val	Ile	Cys	Glu	Val	Trp	Phe	Ala	Leu	Ser	Trp	Leu	Leu	Asp	Gln	Phe	325	330	335
Pro	Lys	Trp	Ser	Pro	Val	Asn	Arg	Glu	Thr	Tyr	Leu	Asp	Arg	Leu	Ser	340	345	350
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Ala	Asn	Thr	Val	Leu	Ser	Ile	Leu	Ala	Val	Asp	Tyr	Pro	Val	Asp	Lys	385	390	395
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Lys	Ile	Asp	Tyr	Leu	Lys	Asp	Lys	Val	Gln	Pro	Ser	Phe	Val	Lys	Glu	450	455	460
Arg	Arg	Ala	Met	Lys	Arg	Glu	Tyr	Glu	Glu	Phe	Lys	Val	Arg	Ile	Asn	465	470	475
Ala	Leu	Val	Ala	Lys	Ala	Gln	Lys	Val	Pro	Glu	Glu	Gly	Trp	Thr	Met	485	490	495
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Phe	Gln	His	His	Lys	Lys	Ala	Gly	Ala	Met	Asn	Ala	Leu	Ile	Arg	Val	545	550	555

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Ser Ile Phe Ser Thr Gly Ile Leu Glu Leu Arg Trp Ser Gly Val Thr  
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Leu Glu Asp Trp Trp Arg Asn Glu Gln Phe Trp Val Ile Gly Gly Thr  
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Ser Ala His Leu Phe Ala Val Phe Gln Gly Leu Leu Lys Val Leu Ala  
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Gly Ile Asp Thr Asn Phe Thr Val Thr Ser Lys Ala Ser Asp Glu Asp  
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Gly Asp Phe Ala Glu Leu Tyr Val Phe Lys Trp Thr Ser Leu Leu Ile  
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Pro Pro Thr Thr Ile Leu Val Val Asn Met Val Gly Ile Val Ala Gly  
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Val Ser Phe Ala Ile Asn Ser Gly Tyr Gln Ser Trp Gly Pro Leu Phe  
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Gly Arg Leu Phe Phe Ala Ile Trp Val Ile Val His Leu Tyr Pro Phe  
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Leu Lys Gly Leu Leu Gly Arg Gln Asn Arg Thr Pro Thr Ile Val Ile  
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Val Trp Ser Val Leu Leu Ala Ser Ile Phe Ser Leu Leu Trp Val Arg  
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Thr Val Leu Ser Ile Leu Ser Val Asp Tyr Pro Val Asp Lys Val Ser
      35             40             45

Cys Tyr Val Ser Asp Asp Gly Ala Ala Met Leu Thr Phe Glu Ala Leu
      50             55             60

Ala Glu Thr Ser Glu Phe Ala Arg Lys Trp Val Pro Phe Ser Lys Lys
      65             70             75             80

Tyr Asn Ile Glu Pro Arg Ala Pro Glu Trp Tyr Phe Ala Gln Lys Ile
      85             90             95

Asp Tyr Leu Lys Asp Lys Val Gln Pro Ser Phe Val Lys Asp Arg Arg
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Ala Met Lys Arg Glu Tyr Glu Glu Phe Lys Ile Arg Ile Asn Gly Leu
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Val Ala Lys Ala Gln Lys Ile Pro Glu Glu Gly Trp Val Met Gln Asp
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Gly Thr Pro Trp Pro Gly Asn Asn Thr Arg Asp His Pro Gly Met Ile
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Gln Val Phe Leu Gly Gln Ser Gly Gly Leu Asp Thr Glu Gly Asn Glu
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Leu Pro Arg Leu Val Tyr Val Ser Arg Glu Lys Arg Pro Gly Phe Gln
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His His Lys Lys Ala Gly Ala Met Asn Ala Leu Val Arg Val Ser Ala  
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Val Leu Thr Asn Gly Pro Phe Leu Leu Asn Leu Asp Cys Asp His Tyr  
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Ile Asn Asn Ser Lys Ala Leu Arg Glu Ala Met Cys Phe Met Met Asp  
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Pro Asn Leu Gly Lys Asn Val Cys Tyr Val Gln Phe Pro Gln Arg Phe  
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Asp Gly Ile Asp Arg Asn Asp Arg Tyr Ala Asn Arg Asn Thr Val Phe  
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Phe Asp Ile Asn Leu Arg Gly Leu Asp Gly Ile Gln Gly Pro Val Tyr  
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Val Gly Thr Gly Cys Val Phe Asn Arg Thr Ala Leu Tyr Gly Tyr Glu  
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Pro Pro Ile Lys Pro Lys His Lys Lys Pro Gly Phe Leu Ser Ser Leu  
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Cys Gly Gly Asn Arg Lys Lys Arg Ser Lys Ser Ser Lys Lys Gly Ser  
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Asp Lys Lys Lys Ser Ser Lys Asn Val Asp Pro Thr Val Pro Ile Phe  
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Ser Leu Glu Asp Ile Glu Glu Gly Val Glu Gly Ala Gly Phe Asp Asp  
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Glu Lys Ser Leu Leu Met Ser Gln Met Ser Leu Glu Lys Arg Phe Gly  
370 375 380

Gln Ser Ala Val Phe Val Ala Ser Thr Leu Met Glu Asn Gly Gly Val  
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<213> Triticum aestivum

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Val	Pro	Phe	Val	Lys	Lys	Tyr	Asp	Ile	Glu	Pro	Arg	Ala	Pro	Glu	Phe	
			420					425					430			
Tyr	Phe	Cys	Gln	Lys	Ile	Asp	Tyr	Leu	Lys	Asp	Lys	Val	Gln	Pro	Ser	
		435					440					445				
Phe	Val	Lys	Asp	Arg	Arg	Ala	Met	Lys	Arg	Glu	Tyr	Glu	Glu	Phe	Lys	
	450					455					460					
Ile	Arg	Ile	Asn	Ala	Leu	Val	Ser	Lys	Ala	Leu	Lys	Val	Pro	Glu	Glu	
	465				470					475					480	
Gly	Trp	Ile	Met	Gln	Asp	Gly	Thr	Pro	Trp	Pro	Gly	Asn	Asn	Thr	Arg	
				485					490					495		
Asp	His	Pro	Gly	Met	Ile	Gln	Val	Phe	Leu	Gly	His	Ser	Gly	Gly	Leu	
			500					505					510			
Asp	Thr	Glu	Gly	Asn	Glu	Leu	Pro	Arg	Leu	Val	Tyr	Val	Ser	Arg	Glu	
		515					520					525				
Lys	Arg	Pro	Gly	Phe	Gln	His	His	Lys	Lys	Ala	Gly	Ala	Met	Asn	Ala	
	530					535					540					
Leu	Val	Arg	Val	Ser	Ala	Val	Leu	Thr	Asn	Gly	Gln	Tyr	Met	Leu	Asn	
	545				550					555					560	
Leu	Asp	Cys	Asp	His	Tyr	Ile	Asn	Asn	Ser	Lys	Ala	Val	Arg	Glu	Ala	
				565					570					575		
Met	Cys	Phe	Leu	Met	Asp	Pro	Asn	Leu	Gly	Pro	Gln	Val	Cys	Tyr	Val	
			580					585					590			
Gln	Phe	Pro	Gln	Arg	Phe	Asp	Gly	Ile	Asp	Arg	Asn	Asp	Arg	Tyr	Ala	
		595					600					605				
Asn	Arg	Asn	Thr	Val	Phe	Phe	Asp	Ile	Asn	Leu	Arg	Gly	Leu	Asp	Gly	
	610					615					620					
Ile	Gln	Gly	Pro	Val	Tyr	Val	Gly	Thr	Gly	Cys	Val	Phe	Asn	Arg	Thr	
	625				630					635					640	



Ala	Ile	Tyr	Gly	Tyr	Glu	Pro	Pro	Ile	Lys	Ala	Lys	Lys	Pro	Gly	Phe	
				645					650					655		
Leu	Ala	Ser	Leu	Cys	Gly	Gly	Lys	Lys	Lys	Ala	Ser	Lys	Ser	Lys	Lys	
			660					665					670			
Arg	Ser	Ser	Asp	Lys	Lys	Lys	Ser	Asn	Lys	His	Val	Asp	Ser	Ser	Val	
		675					680					685				
Pro	Val	Phe	Asn	Leu	Glu	Asp	Ile	Glu	Glu	Gly	Val	Glu	Gly	Ala	Gly	
	690					695					700					
Phe	Asp	Asp	Glu	Lys	Ser	Val	Leu	Met	Ser	Gln	Met	Ser	Leu	Glu	Lys	
705					710					715					720	
Arg	Phe	Gly	Gln	Ser	Ala	Ala	Phe	Val	Ala	Ser	Thr	Leu	Met	Glu	Tyr	
				725					730					735		
Gly	Gly	Val	Pro	Gln	Ser	Ser	Thr	Pro	Glu	Ser	Leu	Leu	Lys	Glu	Ala	
			740					745					750			
Ile	His	Val	Ile	Ser	Cys	Gly	Tyr	Glu	Asp	Lys	Ser	Glu	Trp	Gly	Thr	
		755					760					765				
Glu	Ile	Gly	Trp	Ile	Tyr	Gly	Ser	Val	Thr	Glu	Asp	Ile	Leu	Thr	Gly	
	770					775					780					
Phe	Lys	Met	His	Ala	Arg	Gly	Trp	Arg	Ser	Val	Tyr	Cys	Met	Pro	Lys	
785					790					795					800	
Arg	Pro	Ala	Phe	Lys	Gly	Ser	Ala	Pro	Ile	Asn	Leu	Ser	Asp	Arg	Leu	
				805					810					815		
Asn	Gln	Val	Leu	Arg	Trp	Ala	Leu	Gly	Ser	Val	Glu	Ile	Leu	Phe	Ser	
			820					825					830			
Arg	His	Cys	Pro	Leu	Trp	Tyr	Gly	Tyr	Gly	Gly	Arg	Leu	Lys	Phe	Leu	
		835					840					845				
Glu	Arg	Phe	Ala	Tyr	Ile	Asn	Thr	Thr	Ile	Tyr	Pro	Leu	Thr	Ser	Leu	
	850					855					860					
Pro	Leu	Leu	Val	Tyr	Cys	Ile	Leu	Pro	Ala	Ile	Cys	Leu	Leu	Thr	Gly	
865					870					875					880	
Lys	Phe	Ile	Met	Pro	Glu	Ile	Ser	Asn	Leu	Ala	Ser	Ile	Trp	Phe	Ile	
				885					890					895		
Ala	Leu	Phe	Leu	Ser	Ile	Phe	Ala	Thr	Gly	Ile	Leu	Glu	Met	Arg	Trp	
			900					905					910			
Ser	Gly	Val	Gly	Ile	Asp	Glu	Trp	Trp	Arg	Asn	Glu	Gln	Phe	Trp	Val	
		915					920					925				
Ile	Gly	Gly	Ile	Ser	Ala	His	Leu	Phe	Ala	Val	Phe	Gln	Gly	Leu	Leu	
	930					935					940					
Lys	Val	Leu	Ala	Gly	Ile	Asp	Thr	Asn	Phe	Thr	Val	Thr	Ser	Lys	Ala	
945					950					955					960	

Asn Asp Glu Glu Gly Asp Phe Ala Glu Leu Tyr Met Phe Lys Trp Thr  
965 970 975

Thr Leu Leu Ile Pro Pro Thr Thr Ile Leu Ile Ile Asn Met Val Gly  
980 985 990

Val Val Ala Gly Thr Ser Tyr Ala Ile Asn Ser Gly Tyr Gln Ser Trp  
995 1000 1005

Gly Pro Leu Phe Gly Lys Leu Phe Phe Ala Phe Trp Val Ile Val His  
1010 1015 1020

Leu Tyr Pro Phe Leu Lys Gly Leu Met Gly Arg Gln Asn Arg Thr Pro  
1025 1030 1035 1040

Thr Ile Val Ile Val Trp Ala Val Leu Leu Ala Ser Ile Phe Ser Leu  
1045 1050 1055

Leu Trp Val Arg Val Asp Pro Phe Thr Thr Arg Leu Ala Gly Pro Asn  
1060 1065 1070

Ile Gln Thr Cys Gly Ile Asn Cys  
1075 1080

<210> 31  
<211> 685  
<212> PRT  
<213> Gossypium hirsutum

<400> 31  
Arg Arg Trp Val Pro Phe Cys Lys Lys His Asn Val Glu Pro Arg Ala  
1 5 10 15

Pro Glu Phe Tyr Phe Asn Glu Lys Ile Asp Tyr Leu Lys Asp Lys Val  
20 25 30

His Pro Ser Phe Val Lys Glu Arg Arg Ala Met Lys Arg Glu Tyr Glu  
35 40 45

Glu Phe Lys Val Arg Ile Asn Ala Leu Val Ala Lys Ala Gln Lys Lys  
50 55 60

Pro Glu Glu Gly Trp Val Met Gln Asp Gly Thr Pro Trp Pro Gly Asn  
65 70 75 80

Asn Thr Arg Asp His Pro Gly Met Ile Gln Val Tyr Leu Gly Ser Ala  
85 90 95

Gly Ala Leu Asp Val Asp Gly Lys Glu Leu Pro Arg Leu Val Tyr Val  
100 105 110

Ser Arg Glu Lys Arg Pro Gly Tyr Gln His His Lys Lys Ala Gly Ala  
115 120 125

Glu Asn Ala Leu Val Arg Val Ser Ala Val Leu Thr Asn Ala Pro Phe  
130 135 140

Ile	Leu	Asn	Leu	Asp	Cys	Asp	His	Tyr	Ile	Asn	Asn	Ser	Lys	Ala	Met	
145					150					155					160	
Arg	Glu	Ala	Met	Cys	Phe	Leu	Met	Asp	Pro	Gln	Phe	Gly	Lys	Lys	Leu	
				165					170					175		
Cys	Tyr	Val	Gln	Phe	Pro	Gln	Arg	Phe	Asp	Gly	Ile	Asp	Arg	His	Asp	
			180					185					190			
Arg	Tyr	Ala	Asn	Arg	Asn	Val	Val	Phe	Phe	Asp	Ile	Asn	Met	Leu	Gly	
		195					200					205				
Leu	Asp	Gly	Leu	Gln	Gly	Pro	Val	Tyr	Val	Gly	Thr	Gly	Cys	Val	Phe	
	210					215					220					
Asn	Arg	Gln	Ala	Leu	Tyr	Gly	Tyr	Asp	Pro	Pro	Val	Ser	Glu	Lys	Arg	
225					230					235					240	
Pro	Lys	Met	Thr	Cys	Asp	Cys	Trp	Pro	Ser	Trp	Cys	Cys	Cys	Cys	Cys	
				245					250					255		
Gly	Gly	Ser	Arg	Lys	Lys	Ser	Lys	Lys	Lys	Gly	Glu	Lys	Lys	Gly	Leu	
			260					265					270			
Leu	Gly	Gly	Leu	Leu	Tyr	Gly	Lys	Lys	Lys	Lys	Met	Met	Gly	Lys	Asn	
	275						280					285				
Tyr	Val	Lys	Lys	Gly	Ser	Ala	Pro	Val	Phe	Asp	Leu	Glu	Glu	Ile	Glu	
	290					295					300					
Glu	Gly	Leu	Glu	Gly	Tyr	Glu	Glu	Leu	Glu	Lys	Ser	Thr	Leu	Met	Ser	
305					310					315					320	
Gln	Lys	Asn	Phe	Glu	Lys	Arg	Phe	Gly	Gln	Ser	Pro	Val	Phe	Ile	Ala	
				325					330					335		
Ser	Thr	Leu	Met	Glu	Asn	Gly	Gly	Leu	Pro	Glu	Gly	Thr	Asn	Ser	Thr	
			340					345					350			
Ser	Leu	Ile	Lys	Glu	Ala	Ile	His	Val	Ile	Ser	Cys	Gly	Tyr	Glu	Glu	
		355					360					365				
Lys	Thr	Glu	Trp	Gly	Lys	Glu	Ile	Gly	Trp	Ile	Tyr	Gly	Ser	Val	Thr	
	370					375					380					
Glu	Asp	Ile	Leu	Thr	Gly	Phe	Lys	Met	His	Cys	Arg	Gly	Trp	Lys	Ser	
385					390					395					400	
Val	Tyr	Cys	Val	Pro	Lys	Arg	Pro	Ala	Phe	Lys	Gly	Ser	Ala	Pro	Ile	
				405					410					415		
Asn	Leu	Ser	Asp	Arg	Leu	His	Gln	Val	Leu	Arg	Trp	Ala	Leu	Gly	Ser	
			420					425					430			
Val	Glu	Ile	Phe	Leu	Ser	Arg	His	Cys	Pro	Leu	Trp	Tyr	Gly	Tyr	Gly	
		435					440					445				
Gly	Lys	Leu	Lys	Trp	Leu	Glu	Arg	Leu	Ala	Tyr	Ile	Asn	Thr	Ile	Val	
	450					455					460					

Tyr Pro Phe Thr Ser Ile Pro Leu Leu Ala Tyr Cys Thr Ile Pro Ala  
 465 470 475 480  
 Val Cys Leu Leu Thr Gly Lys Phe Ile Ile Pro Thr Leu Ser Asn Leu  
 485 490 495  
 Thr Ser Val Trp Phe Leu Ala Leu Phe Leu Ser Ile Ile Ala Thr Gly  
 500 505 510  
 Val Leu Glu Leu Arg Trp Ser Gly Val Ser Ile Gln Asp Trp Trp Arg  
 515 520 525  
 Asn Glu Gln Phe Trp Val Ile Gly Gly Val Ser Ala His Leu Phe Ala  
 530 535 540  
 Val Phe Gln Gly Leu Leu Lys Val Leu Ala Gly Val Asp Thr Asn Phe  
 545 550 555 560  
 Thr Val Thr Ala Lys Ala Ala Asp Asp Thr Glu Phe Gly Glu Leu Tyr  
 565 570 575  
 Leu Phe Lys Trp Thr Thr Leu Leu Ile Pro Pro Thr Thr Leu Ile Ile  
 580 585 590  
 Leu Asn Met Val Gly Val Val Ala Gly Val Ser Asp Ala Ile Asn Asn  
 595 600 605  
 Gly Tyr Gly Ser Trp Gly Pro Leu Phe Gly Lys Leu Phe Phe Ala Phe  
 610 615 620  
 Trp Val Ile Leu His Leu Tyr Pro Phe Leu Lys Gly Leu Met Gly Arg  
 625 630 635 640  
 Gln Asn Arg Thr Pro Thr Ile Val Val Leu Trp Ser Ile Leu Leu Ala  
 645 650 655  
 Ser Ile Phe Ser Leu Val Trp Val Arg Ile Asp Pro Phe Leu Pro Lys  
 660 665 670  
 Gln Thr Gly Pro Val Leu Lys Gln Cys Gly Val Glu Cys  
 675 680 685

<210> 32  
 <211> 701  
 <212> PRT  
 <213> Gossypium hirsutum

<400> 32  
 Asp Tyr Pro Val Glu Lys Val Ser Cys Tyr Val Ser Asp Asp Gly Ala  
 1 5 10 15  
 Ala Met Leu Thr Phe Glu Ala Leu Ser Glu Thr Ser Glu Phe Ala Arg  
 20 25 30  
 Lys Trp Val Pro Phe Cys Lys Lys Tyr Asn Ile Glu Pro Arg Ala Pro  
 35 40 45  
 Glu Trp Tyr Phe Ala Gln Lys Ile Asp Tyr Leu Lys Asp Lys Val Gln  
 50 55 60

Thr	Ser	Phe	Val	Lys	Glu	Arg	Arg	Ala	Met	Lys	Arg	Glu	Tyr	Glu	Glu	65	70	75	80
Phe	Lys	Val	Arg	Val	Asn	Gly	Leu	Val	Ala	Lys	Ala	Gln	Lys	Val	Pro	85	90	95	
Glu	Glu	Gly	Trp	Ile	Met	Gln	Asp	Gly	Thr	Pro	Trp	Pro	Gly	Asn	Asn	100	105	110	
Thr	Arg	Asp	His	Pro	Gly	Met	Ile	Gln	Val	Phe	Leu	Gly	Gln	Ser	Gly	115	120	125	
Gly	Leu	Asp	Ala	Glu	Gly	Asn	Glu	Leu	Pro	Arg	Leu	Val	Tyr	Val	Ser	130	135	140	
Arg	Glu	Lys	Arg	Pro	Gly	Phe	Gln	His	His	Lys	Lys	Ala	Gly	Ala	Met	145	150	155	160
Asn	Ala	Leu	Val	Arg	Val	Ser	Ala	Val	Leu	Thr	Asn	Gly	Ala	Phe	Leu	165	170	175	
Leu	Asn	Leu	Asp	Cys	Asp	His	Tyr	Ile	Asn	Asn	Ser	Lys	Ala	Leu	Arg	180	185	190	
Glu	Ala	Met	Cys	Phe	Leu	Met	Asp	Pro	Asn	Leu	Gly	Lys	Gln	Val	Cys	195	200	205	
Tyr	Val	Gln	Phe	Pro	Gln	Arg	Phe	Asp	Gly	Ile	Asp	Arg	Asn	Asp	Arg	210	215	220	
Tyr	Ala	Asn	Arg	Asn	Thr	Val	Phe	Phe	Asp	Ile	Asn	Leu	Arg	Gly	Leu	225	230	235	240
Asp	Gly	Ile	Gln	Gly	Pro	Val	Tyr	Val	Gly	Thr	Gly	Cys	Val	Phe	Asn	245	250	255	
Arg	Thr	Ala	Leu	Tyr	Gly	Tyr	Glu	Pro	Pro	Leu	Lys	Pro	Lys	His	Arg	260	265	270	
Lys	Thr	Gly	Ile	Leu	Ser	Ser	Leu	Cys	Gly	Gly	Ser	Arg	Lys	Lys	Ser	275	280	285	
Ser	Lys	Ser	Ser	Lys	Lys	Gly	Ser	Asp	Lys	Lys	Lys	Ser	Gly	Lys	His	290	295	300	
Val	Asp	Ser	Thr	Val	Pro	Val	Phe	Asn	Leu	Glu	Asp	Ile	Glu	Glu	Gly	305	310	315	320
Val	Glu	Gly	Ala	Gly	Phe	Asp	Asp	Glu	Lys	Ser	Leu	Leu	Met	Ser	Gln	325	330	335	
Met	Ser	Leu	Glu	Lys	Arg	Phe	Gly	Gln	Ser	Ala	Val	Phe	Val	Ala	Ser	340	345	350	
Thr	Leu	Met	Glu	Asn	Gly	Gly	Val	Pro	Gln	Ser	Ala	Thr	Pro	Glu	Thr	355	360	365	
Leu	Leu	Lys	Glu	Ala	Ile	His	Val	Ile	Ser	Cys	Gly	Tyr	Glu	Asp	Lys	370	375	380	

Thr	Asp	Trp	Gly	Ser	Glu	Ile	Gly	Trp	Ile	Tyr	Gly	Ser	Val	Thr	Glu	385	390	395	400
Asp	Ile	Leu	Thr	Gly	Phe	Lys	Met	His	Ala	Arg	Gly	Trp	Arg	Ser	Ile	405	410	415	
Tyr	Cys	Met	Pro	Lys	Arg	Pro	Ala	Phe	Lys	Gly	Ser	Ala	Pro	Ile	Asn	420	425	430	
Leu	Ser	Asp	Arg	Leu	Asn	Gln	Val	Leu	Arg	Trp	Ala	Leu	Gly	Ser	Val	435	440	445	
Glu	Ile	Leu	Phe	Ser	Arg	His	Cys	Pro	Ile	Trp	Tyr	Gly	Tyr	Ser	Gly	450	455	460	
Arg	Leu	Lys	Trp	Leu	Glu	Arg	Phe	Ala	Tyr	Val	Asn	Thr	Thr	Ile	Tyr	465	470	475	480
Pro	Val	Thr	Ala	Ile	Pro	Leu	Leu	Met	Tyr	Cys	Thr	Leu	Pro	Ala	Val	485	490	495	
Cys	Leu	Leu	Thr	Asn	Lys	Phe	Ile	Ile	Pro	Gln	Ile	Ser	Asn	Leu	Ala	500	505	510	
Ser	Ile	Trp	Phe	Ile	Ser	Leu	Phe	Leu	Ser	Ile	Phe	Ala	Thr	Gly	Ile	515	520	525	
Leu	Lys	Met	Lys	Trp	Asn	Gly	Val	Gly	Ile	Asp	Gln	Trp	Trp	Arg	Asn	530	535	540	
Glu	Gln	Phe	Trp	Val	Ile	Gly	Gly	Val	Ser	Ala	His	Leu	Phe	Ala	Val	545	550	555	560
Phe	Gln	Gly	Leu	Leu	Lys	Val	Leu	Ala	Gly	Ile	Asp	Thr	Asn	Phe	Thr	565	570	575	
Val	Thr	Ser	Lys	Ala	Ser	Asp	Glu	Asp	Gly	Asp	Phe	Ala	Glu	Leu	Tyr	580	585	590	
Met	Phe	Lys	Trp	Thr	Thr	Leu	Leu	Ile	Pro	Pro	Thr	Thr	Leu	Leu	Ile	595	600	605	
Ile	Asn	Leu	Val	Gly	Val	Val	Ala	Gly	Ile	Ser	Tyr	Val	Ile	Asn	Ser	610	615	620	
Gly	Tyr	Gln	Ser	Trp	Gly	Pro	Leu	Phe	Gly	Lys	Leu	Phe	Phe	Ala	Phe	625	630	635	640
Trp	Val	Ile	Ile	His	Leu	Tyr	Pro	Phe	Leu	Lys	Gly	Leu	Met	Gly	Arg	645	650	655	
Gln	Asn	Arg	Thr	Pro	Thr	Ile	Val	Val	Val	Trp	Ser	Ile	Leu	Leu	Ala	660	665	670	
Ser	Ile	Phe	Ser	Leu	Leu	Trp	Val	Arg	Ile	Asp	Pro	Phe	Thr	Thr	Arg	675	680	685	
Val	Thr	Gly	Pro	Asp	Val	Glu	Gln	Cys	Gly	Ile	Asn	Cys				690	695	700	

<210> 33  
 <211> 1065  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 33  
 Met Glu Ser Glu Gly Glu Thr Ala Gly Lys Pro Met Lys Asn Ile Val  
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 Pro Gln Thr Cys Gln Ile Cys Ser Asp Asn Val Gly Lys Thr Val Asp  
                   20                  25                  30  
 Gly Asp Arg Phe Val Ala Cys Asp Ile Cys Ser Phe Pro Val Cys Arg  
                   35                  40                  45  
 Pro Cys Tyr Glu Tyr Glu Arg Lys Asp Gly Asn Gln Ser Cys Pro Gln  
                   50                  55                  60  
 Cys Lys Thr Arg Tyr Lys Arg Leu Lys Gly Ser Pro Ala Ile Pro Gly  
                   65                  70                  75                  80  
 Asp Lys Asp Glu Asp Gly Leu Ala Asp Glu Gly Thr Val Glu Phe Asn  
                   85                  90                  95  
 Tyr Pro Gln Lys Glu Lys Ile Ser Glu Arg Met Leu Gly Trp His Leu  
                   100                  105                  110  
 Thr Arg Gly Lys Gly Glu Glu Met Gly Glu Pro Gln Tyr Asp Lys Glu  
                   115                  120                  125  
 Val Ser His Asn His Leu Pro Arg Leu Thr Ser Arg Gln Asp Thr Ser  
                   130                  135                  140  
 Gly Glu Phe Ser Ala Ala Ser Pro Glu Arg Leu Ser Val Ser Ser Thr  
                   145                  150                  155                  160  
 Ile Ala Gly Gly Lys Arg Leu Pro Tyr Ser Ser Asp Val Asn Gln Ser  
                   165                  170                  175  
 Pro Asn Arg Arg Ile Val Asp Pro Val Gly Leu Gly Asn Val Ala Trp  
                   180                  185                  190  
 Lys Glu Arg Val Asp Gly Trp Lys Met Lys Gln Glu Lys Asn Thr Gly  
                   195                  200                  205  
 Pro Val Ser Thr Gln Ala Ala Ser Glu Arg Gly Gly Val Asp Ile Asp  
                   210                  215                  220  
 Ala Ser Thr Asp Ile Leu Ala Asp Glu Ala Leu Leu Asn Asp Glu Ala  
                   225                  230                  235                  240  
 Arg Gln Pro Leu Ser Arg Lys Val Ser Ile Pro Ser Ser Arg Ile Asn  
                   245                  250                  255  
 Pro Tyr Arg Met Val Ile Met Leu Arg Leu Val Ile Leu Cys Leu Phe  
                   260                  265                  270

Leu	His	Tyr	Arg	Ile	Thr	Asn	Pro	Val	Pro	Asn	Ala	Phe	Ala	Leu	Trp
		275					280					285			
Leu	Val	Ser	Val	Ile	Cys	Glu	Ile	Trp	Phe	Ala	Leu	Ser	Trp	Ile	Leu
	290				295	295					300				
Asp	Gln	Phe	Pro	Lys	Trp	Phe	Pro	Val	Asn	Arg	Glu	Thr	Tyr	Leu	Asp
305					310					315				320	
Arg	Leu	Ala	Leu	Arg	Tyr	Asp	Arg	Glu	Gly	Glu	Pro	Ser	Gln	Leu	Ala
				325					330					335	
Ala	Val	Asp	Ile	Phe	Val	Ser	Thr	Val	Asp	Pro	Leu	Lys	Glu	Pro	Pro
			340					345					350		
Leu	Val	Thr	Ala	Asn	Thr	Val	Leu	Ser	Ile	Leu	Ala	Val	Asp	Tyr	Pro
		355					360					365			
Val	Asp	Lys	Val	Ser	Cys	Tyr	Val	Phe	Asp	Asp	Gly	Ala	Ala	Met	Leu
	370					375					380				
Ser	Phe	Glu	Ser	Leu	Ala	Glu	Thr	Ser	Glu	Phe	Ala	Arg	Lys	Trp	Val
385					390					395					400
Pro	Phe	Cys	Lys	Lys	Tyr	Ser	Ile	Glu	Pro	Arg	Ala	Pro	Glu	Trp	Tyr
				405					410					415	
Phe	Ala	Ala	Lys	Ile	Asp	Tyr	Leu	Lys	Asp	Lys	Val	Gln	Thr	Ser	Phe
			420					425					430		
Val	Lys	Asp	Arg	Arg	Ala	Met	Lys	Arg	Glu	Tyr	Glu	Glu	Phe	Lys	Ile
		435					440					445			
Arg	Ile	Asn	Ala	Leu	Val	Ser	Lys	Ala	Leu	Lys	Cys	Pro	Glu	Glu	Gly
	450					455					460				
Trp	Val	Met	Gln	Asp	Gly	Thr	Pro	Trp	Pro	Gly	Asn	Asn	Thr	Gly	Asp
465					470					475					480
His	Pro	Gly	Met	Ile	Gln	Val	Phe	Leu	Gly	Gln	Asn	Gly	Gly	Leu	Asp
				485					490					495	
Ala	Glu	Gly	Asn	Glu	Leu	Pro	Arg	Leu	Val	Tyr	Val	Ser	Arg	Glu	Lys
			500					505					510		
Arg	Pro	Gly	Phe	Gln	His	His	Lys	Lys	Ala	Gly	Ala	Met	Asn	Ala	Leu
		515					520					525			
Val	Arg	Val	Ser	Ala	Val	Leu	Thr	Asn	Gly	Pro	Phe	Ile	Leu	Asn	Leu
	530					535					540				
Asp	Cys	Asp	His	Tyr	Ile	Asn	Asn	Ser	Lys	Ala	Leu	Arg	Glu	Ala	Met
545					550					555					560
Cys	Phe	Leu	Met	Asp	Pro	Asn	Leu	Gly	Lys	Gln	Val	Cys	Tyr	Val	Gln
				565					570					575	
Phe	Pro	Gln	Arg	Phe	Asp	Gly	Ile	Asp	Lys	Asn	Asp	Arg	Tyr	Ala	Asn
			580					585					590		



Arg	Asn	Thr	Val	Phe	Phe	Asp	Ile	Asn	Leu	Arg	Gly	Leu	Asp	Gly	Ile	
	595						600					605				
Gln	Gly	Pro	Val	Tyr	Val	Gly	Thr	Gly	Cys	Val	Phe	Asn	Arg	Thr	Ala	
	610					615					620					
Leu	Tyr	Gly	Tyr	Glu	Pro	Pro	Ile	Lys	Val	Lys	His	Lys	Lys	Pro	Ser	
	625				630					635					640	
Leu	Leu	Ser	Lys	Leu	Cys	Gly	Gly	Ser	Arg	Lys	Lys	Asn	Ser	Lys	Ala	
				645					650					655		
Lys	Lys	Glu	Ser	Asp	Lys	Lys	Lys	Ser	Gly	Arg	His	Thr	Asp	Ser	Thr	
			660					665					670			
Val	Pro	Val	Phe	Asn	Leu	Asp	Asp	Ile	Glu	Glu	Gly	Val	Glu	Gly	Ala	
		675					680					685				
Gly	Phe	Asp	Asp	Glu	Lys	Ala	Leu	Leu	Met	Ser	Gln	Met	Ser	Leu	Glu	
	690					695					700					
Lys	Arg	Phe	Gly	Gln	Ser	Ala	Val	Phe	Val	Ala	Ser	Thr	Leu	Met	Glu	
	705				710					715					720	
Asn	Gly	Gly	Val	Pro	Pro	Ser	Ala	Thr	Pro	Glu	Asn	Leu	Leu	Lys	Glu	
				725					730					735		
Ala	Ile	His	Val	Ile	Ser	Cys	Gly	Tyr	Glu	Asp	Lys	Ser	Asp	Trp	Gly	
			740					745					750			
Met	Glu	Ile	Gly	Trp	Ile	Tyr	Gly	Ser	Val	Thr	Glu	Asp	Ile	Leu	Thr	
		755					760					765				
Gly	Phe	Lys	Met	His	Ala	Arg	Gly	Trp	Arg	Ser	Ile	Tyr	Cys	Met	Pro	
	770					775					780					
Lys	Leu	Pro	Ala	Phe	Lys	Gly	Ser	Ala	Pro	Ile	Asn	Leu	Ser	Asp	Arg	
	785				790					795					800	
Leu	Asn	Gln	Val	Leu	Arg	Trp	Ala	Leu	Gly	Ser	Val	Glu	Ile	Leu	Phe	
				805					810					815		
Ser	Arg	His	Cys	Pro	Ile	Trp	Tyr	Gly	Tyr	Asn	Gly	Arg	Leu	Lys	Phe	
			820					825					830			
Leu	Glu	Arg	Phe	Ala	Tyr	Val	Asn	Thr	Thr	Ile	Tyr	Pro	Ile	Thr	Ser	
		835					840					845				
Ile	Pro	Leu	Leu	Met	Tyr	Cys	Thr	Leu	Leu	Ala	Val	Cys	Leu	Phe	Thr	
	850					855					860					
Asn	Gln	Phe	Ile	Ile	Pro	Gln	Ile	Ser	Asn	Ile	Ala	Ser	Ile	Trp	Phe	
	865				870					875					880	
Leu	Ser	Leu	Phe	Leu	Ser	Ile	Phe	Ala	Thr	Gly	Ile	Leu	Glu	Met	Arg	
			885					890						895		
Trp	Ser	Gly	Val	Gly	Ile	Asp	Glu	Trp	Trp	Arg	Asn	Glu	Gln	Phe	Trp	
			900					905					910			

Val Ile Gly Gly Val Ser Ala His Leu Phe Ala Val Phe Gln Gly Ile  
 915 920 925  
 Leu Lys Val Leu Ala Gly Ile Asp Thr Asn Phe Thr Val Thr Ser Lys  
 930 935 940  
 Ala Ser Asp Glu Asp Gly Asp Phe Ala Glu Leu Tyr Leu Phe Lys Trp  
 945 950 955 960  
 Thr Thr Leu Leu Ile Pro Pro Thr Thr Leu Leu Ile Val Asn Leu Val  
 965 970 975  
 Gly Val Val Ala Gly Val Ser Tyr Ala Ile Asn Ser Gly Tyr Gln Ser  
 980 985 990  
 Trp Gly Pro Leu Phe Gly Lys Leu Phe Phe Ala Phe Trp Val Ile Val  
 995 1000 1005  
 His Leu Tyr Pro Phe Leu Lys Gly Leu Met Gly Arg Gln Asn Arg Thr  
 1010 1015 1020  
 Pro Thr Ile Val Val Val Trp Ser Val Leu Leu Ala Ser Ile Phe Ser  
 1025 1030 1035 1040  
 Leu Leu Trp Val Arg Ile Asp Pro Phe Thr Ser Arg Val Thr Gly Pro  
 1045 1050 1055  
 Asp Ile Leu Glu Cys Gly Ile Asn Cys  
 1060 1065